

FEATURES

1. Mounting space of the 3A class minimum

- 17.0(L)×7.0(W)×16.0(H) mm
.670(L)×.276(W)×.630(H) inch
- At 84% that of its predecessor (comparison made with our LD Relay), the low foot print saves space.

2. Low operating power

Compact size, nominal operating power as low as 200mW.

3. Perfect for small load switching of home appliances

- 10⁵ switching operations possible with a 3A 250V AC resistive load.
- Mechanical life: 2×10⁶ (at 180 cpm)

4. High insulation resistance

Surge withstand voltage between contact and coil: 6,000 V

5. Conforms to the various safety standards

UL, C-UL, VDE approved.

TYPICAL APPLICATIONS

- Air conditioner
- Refrigerator
- Hot water units
- Fan heaters
- Microwave ovens

RoHS Directive compatibility information
<http://www.nais-e.com/>

SPECIFICATIONS

Contact

| | | |
|--|--|--|
| Arrangement | 1 Form A | |
| Initial contact resistance, max. (By voltage drop 6 V DC 1 A) | Max. 100 mΩ | |
| Contact material | AgNi type | |
| Rating (resistive load) | Nominal switching capacity | 3A 250V AC 3A 30V DC |
| | Max. switching power | 831VA (AC), 90W (DC) |
| | Max. switching voltage | 277V AC |
| | Max. switching current | 5A |
| | Min. switching capacity ^{#1} (Reference value) | 100 mA, 5 V DC |
| Expected life (min. operations) | Mechanical (at 180 cpm) | 2×10 ⁶ |
| | Electrical (at 20 cpm) (resistive load) | 5A 250V AC: 5×10 ⁴ 3A 250V AC: 10 ⁵ |

Coil

| | |
|-------------------------|--------|
| Nominal operating power | 200 mW |
|-------------------------|--------|

#1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

Remarks

- *1 Measurement at same location as "Initial breakdown voltage" section.
- *2 Detection current: 10mA
- *3 Wave is standard shock voltage of $\pm 1.2 \times 50\mu s$ according to JEC-212-1981
- *4 Excluding contact bounce time.
- *5 Half-wave pulse of sine wave: 11 ms; detection time: 10 μs
- *6 Half-wave pulse of sine wave: 6 ms
- *7 Detection time: 10 μs
- *8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT

Characteristics

| | | |
|---|---------------------------|---|
| Max. operating speed | | 20 cpm (at rated load) |
| Initial insulation resistance* ¹ | | Min. 1,000 MΩ (at 500 V DC) |
| Initial * ² breakdown voltage | Between open contacts | 750 Vrms for 1 min. |
| | Between contact and coil | 3,000 Vrms for 1 min. |
| Initial surge voltage between contact and coil* ³ | | 6,000 V |
| Operate time* ⁴ (at nominal voltage) | | Max. 15ms (at 20°C 68°F) |
| Release time (with diode)* ⁴ (at nominal voltage) | | Max. 15ms (at 20°C 68°F) |
| Temperature rise (at 70°C) | | Max. 45°C with nominal coil voltage and at 5 A contact carrying current (resistance method) |
| Shock resistance | Functional* ⁵ | 100 m/s ² {approx. 10 G} |
| | Destructive* ⁶ | 1,000 m/s ² {approx. 100 G} |
| Vibration resistance | Functional* ⁷ | 10 to 55Hz at double amplitude of 1.5mm |
| | Destructive | 10 to 55Hz at double amplitude of 1.5mm |
| Conditions for operation, transport and storage* ⁸ (Not freezing and condensing at low temperature) | Ambient temp. | -40°C to +70°C -40°F to +158°F |
| | Humidity | 5 to 85% R.H. |
| Unit weight | | Approx. 4 g .14 oz |

ORDERING INFORMATION

Ex. A LJ 1 12 W

| Product name | Contact arrangement | Coil voltage, V DC | Packing style* |
|--------------|---------------------|--|-------------------|
| LJ | 1: 1 Form A | 05: 5 09: 9 12: 12 18: 18 24: 24 | W: Carton packing |

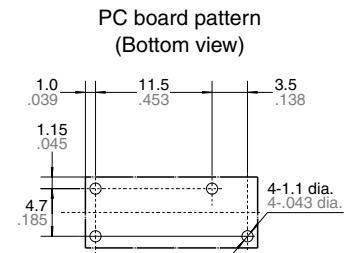
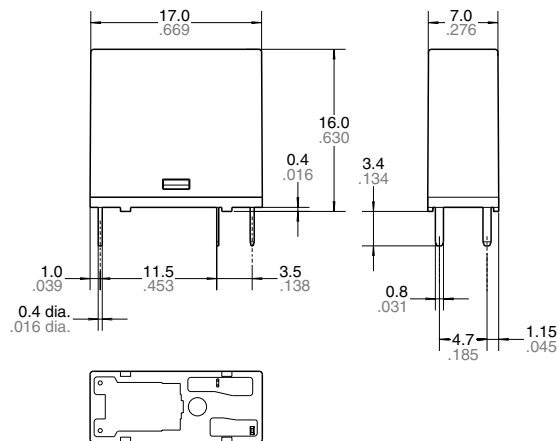
* Please consult with our sales office on a stick packing type.

TYPES AND COIL DATA

| Part No. | Nominal voltage, V DC (at 20°C 68°F) | Pick-up voltage, V DC (max.) (Initial) (at 20°C 68°F) | Drop-out voltage, V DC (min.) (Initial) (at 20°C 68°F) | Coil resistance, Ω (±10%) (at 20°C 68°F) | Nominal operating current, mA (±10%) (at 20°C 68°F) | Nominal operating power, mW (at 20°C 68°F) | Maximum allowable voltage, V DC (at 20°C 68°F) |
|----------|--------------------------------------|---|--|--|---|--|--|
| ALJ105W | 5 | 3.75 | 0.25 | 125 | 40 | 200 | 6.5 |
| ALJ109W | 9 | 6.75 | 0.45 | 405 | 22.2 | | 11.7 |
| ALJ112W | 12 | 9 | 0.6 | 720 | 16.7 | | 15.6 |
| ALJ118W | 18 | 13.5 | 0.9 | 1,620 | 11.1 | | 23.4 |
| ALJ124W | 24 | 18 | 1.2 | 2,880 | 8.3 | | 31.2 |

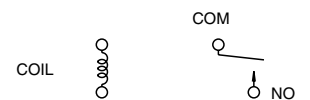
DIMENSIONS

mm inch



Tolerance: ±0.1 ±.004

Schematic (Bottom view)

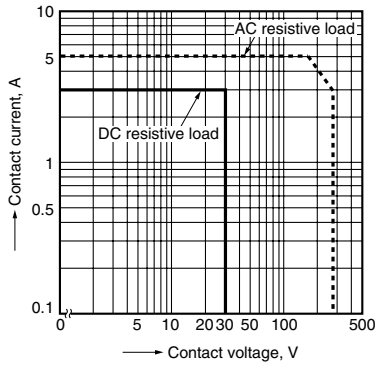


Dimension : **General tolerance**
 Max. 1mm .039 inch: ±0.1 ±.004
 1 to 3mm .039 to .118 inch: ±0.2 ±.008
 Min. 3mm .118 inch: ±0.3 ±.012

LJ (ALJ)

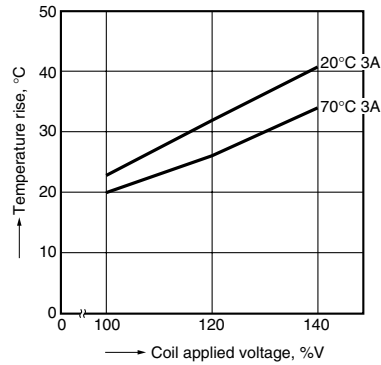
REFERENCE DATA

1. Maximum value for switching capacity

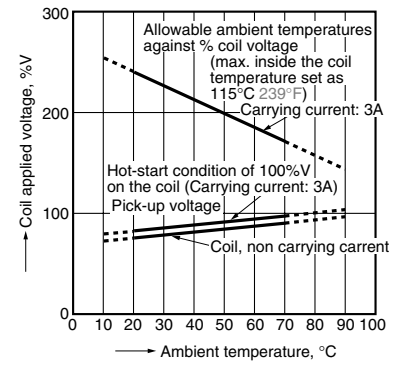


2. Coil temperature rise

Sample: ALJ112, 6pcs.
Point measured: Coil inside,
contact carrying current: 3A

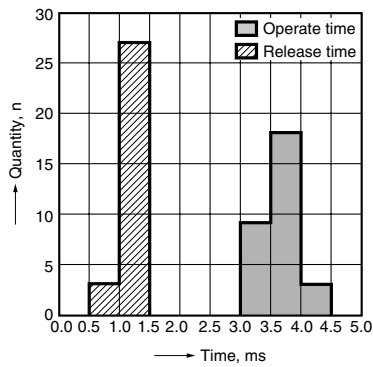


3. Ambient temperature characteristics and coil applied voltage



4. Distribution of operate and release time

Sample: ALJ112, 30pcs.



For Cautions for Use, see Relay Technical Information